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Photograph by A. W. Cutler

THE WORKING GIRL HAS A LOAD ON HER MIND

Bellhops in Portugal's northern provinces are girls, like this one from the Villa do Conde. By keeping level heads, they carry baggage even upstairs without using their hands (see Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Portugal, The Sunset Land

WHEN twenty-seven nations discussed a neutrality pact with an eye on Spain's civil war, a single country stood out against the agreement of twenty-six—Portugal.

Three centuries ago, a decision of Portugal could have shaken all Europe. In the past this small country has ranked with England and Spain, both much larger, as a center of a world empire. Portugal in its glory virtually ruled the seas, held the record for transoceanic pioneering, and controlled territory in four continents.

Now the country on the southwesternmost edge of the Iberian Peninsula, over which much of Europe sees the sun set daily in the Atlantic, brightens its corner with a sunset glow of former glory and wealth that has waned. But like all sunsets, Portugal's is a prelude to a new dawn, and the past decade of progress promises a new era.

Atlantic Influence Divorced Portugal from Spain

Portugal is far more than a footnote to Spain. With the exception of sixty dark years of "captivity" (1580-1640), the smaller country has maintained an entirely separate establishment on Spain's very doorstep since the end of the 11th century. The Atlantic, washing 350 miles of western coast, made Portugal turn its back on Europe and become a precocious sea power. The ocean brought moisture and mildness to the climate, as well as maritime importance to the history.

Portugal's 35,490 square miles may be comparable to the area of Borneo or Hungary or Annam, inconspicuous in world history. Yet Brazil, almost a hundred times as large as the mother country, was only one of its numerous colonies scattered along both sides of Africa, in India, China, the rich East Indies, and the Azores a quarter of the way across the Atlantic.

Portuguese caravels sailed far and relatively fast, beginning in the late 15th century, to corral such a great colonial realm. A venturesome Portuguese named Labrador made an easily recognized contribution to exploration. Columbus offered his services to Portugal, and though rejected, lived to say "I told you so!" when a Portugese effort to beat him to the New World was defeated by mutiny. It was a Portuguese, Diaz, who in 1583 rounded the tip of Africa, shortly after his countrymen had reached those pre-Columbian Atlantic milestones, Madeira, the Canaries, and the Azores. Globe-girdling Magellan was Portuguese, though he sailed under the Spanish flag.

Port Wine Named for Portugal's Oporto

Vasco da Gama brought back to Portugal something far more valuable than his cargo of spices and gems—the secret of a successful sea route around Africa to treasures of the Orient. Portuguese navigators were no friends of geography; they concealed the whereabouts of their discoveries, so that British and Dutch sailors had to serve humbly in their crews to learn the new sea-ways. This monopoly of knowledge, although brief, helped Portugal get a head start on the road to empire.

The extent of the empire, however, was its own undoing. Concentration on the great foreign treasure hunt made Portugal neglect the old homestead.

Tilling the soil, except for the brilliant interval of the navigation era, has been Portugal's main occupation since it formed in part the old Roman province of Lusitania. Over one-half the population is engaged in agriculture. Tending the vines and plucking and treading the purple grapes form the leading industry. Portugal and the city of Oporto have been such important factors in the European

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Photograph by A. W. Cutler

PORTUGUESE FARMING HAS NOT CAUGHT UP WITH MODERN TIMES OR APPETITES

Antiquated methods of agriculture belie the machine age, and do not produce quite enough food for Portugal's present population. The most valuable crop is wheat. Plowing in Northern Portugal at Vianna do Castello is distinguished for ornament instead of speed. The long-horned tawny oxen are hitched up with a carved bow, usually of olive wood, frequently taller and more intricately carved than this one, and painted with warm colors. The oldest, instead of the latest, model is prized, and yokes are handed down for generations. Women with shawls across their chins ordinarily do the field work (see Bulletin No. 1).

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Monrovia Has One of Four U. S. Legations in Africa

CONSTRUCTION of a new American legation building on a five-acre tract at Monrovia, Liberia, has been recommended by the Foreign Service Building Commission at Washington.

Monrovia is one of four cities on the African continent which have American legations. The others are Cairo, Addis Ababa, and Pretoria.

Capital, Largest City and Chief Port of Liberia

Named for President James Monroe, Monrovia is more than just the fountainhead of Liberian government. It also is the largest city and chief port of the Negro Republic. Nevertheless, even after more than a century of existence, many newer coastal cities of the United States have a more enviable record especially in economic progress. As capital of the Republic, it is the government headquarters for a region about as large as Ohio, but a vast portion is torrid jungle land inhabited by uncivilized peoples. Although the largest city, it has only 10,000 residents; and while it is the chief port, deep-draft vessels are obliged to anchor far out in the harbor and to transfer their cargoes and passengers to the city's wharves by small boats that can pass between dangerous sand bars.

Viewed from a steamer, the white buildings of frame and painted brick which extend from the shore up the hillside in the background, present a spotless appearance. But on landing, a visitor finds that appearances have been somewhat deceptive. The river front and Water Street, the main business thoroughfare in the lower part of the town, are lined with some clean, up-to-date buildings; but there are others, not so sanitary and modern.

"White House" Has an East Room

The government buildings and finer residences of Monrovia occupy a section of the city above and beyond the water front. Most of the structures are sprawling one-story structures, mingling with a few of two and three stories. Some are adorned with wide verandas and tall pillars in the style of buildings in the southern States, whence came the vanguard of Liberian residents when American philanthropists made it possible for free Negroes to establish their own colony in their native land in the early part of the last century.

The executive mansion, or "White House," is a large white, three-story building, and like the White House at Washington, has an "East Room." In the reception room are portraits of some of Liberia's former presidents.

Monrovia was dozing when, about a decade ago, Liberia's name blazed in the headlines of the American press as having been chosen by an American rubber products manufacturer as a plantation area for rubber trees. The manufacturer leased 1,000,000 acres of land, cleared much of it, employed 10,000 Liberians, built roads and set about planting trees. The largest area leased was within a short distance of Monrovia's city limits. Another plantation was established in the southern part of the Republic. In 1935, 55,000 acres had been planted in 10,000,000 rubber trees. In 1934, 447,979 pounds of rubber produced on the plantations was exported. Coffee, oil, nuts (see illustration next page), raffia, ivory, and ginger also are exported through Monrovia.

Note: See also "Land of the Free in Africa" (Liberia), *National Geographic Magazine*, October, 1922.

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wine list that "port" came to be the name of a wine. The wines of Portugal were the subject of an early 18th century trade treaty to encourage their export to England.

Corn and wheat are just beginning to recover from neglect in favor of the vine. Olives are a leading crop, and place the country among the world's busiest growers. Cork (see illustration, below) is a particularly important export. Many of the sardines consumed in the United States are caught and canned in Portugal.

A nation busy with farming and fishing, Portugal has little use for formal education. Although there are three universities, more than one-half the population can neither read nor write. The peasants, however, preserve by word of mouth a rich folk lore, and their unwritten four-line poems, recited from one end of the country to the other, are famous. They are so numerous that a single collector was able to record ten thousand. Their language, with its signal scarcity of l's and n's, is represented in the world's literature by the 16th century *Lusiad,* written by the one-eyed Camões largely while in exile.

City life in Portugal is almost confined to Lisboa (Lisbon), the capital with over a half-million inhabitants, and Oporto, only half as large. Setubal, third in size, is a mere town of 37,000, somewhat over one-eighth as large as Oporto. Lisboa's great development was promoted in the early 16th century, when European merchants flocked there to buy treasures which Portuguese mariners brought from secret sources, and the city trebled its size in three decades. Its greatest disaster occurred on November 1, 1755, when it was practically demolished by fifteen minutes of earthquake and tidal wave.

Note: Additional Portuguese references and illustrations can be found in "Greatest Voyage in the Annals of the Sea" (Magellan), *National Geographic Magazine,* November, 1932; "The Pathfinder of the East" (Vasco da Gama), and "An Altitudinal Journey Through Portugal," November, 1927; and "Lisbon, The City of the Friendly Bay," November, 1922.

Bulletin No. 1, March 8, 1937.

Photograph by Franklin Adams

NO HURRYING IN PORTUGAL'S CORK TRADE

One of the leading exports of Portugal is cork, stripped from the cork oaks which abound in the forests covering upwards of a fifth of the entire country. Loads of the light bark amble slowly to market in awkward ox-carts just a few improvements beyond Stone Age vehicles. The wheels are of an archaic design rarely seen in the 20th century. The walking driver carries a goad. There is no rush to convert the bark into stoppers; much of it is exported in the crude state seen above, and manufactured abroad. Ox-carts and mule-carts for cork transportation are rapidly being replaced by trucks.

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Eclipse To Be Studied from Desert Islands

ONE of the largest and most completely-equipped expeditions ever organized to study an eclipse of the sun will be sent to observe the unusual solar eclipse of next June 8 from a tiny coral atoll in the Phoenix Islands far out in the midst of the Pacific Ocean.

This eclipse has several unique aspects. It will be the longest solar eclipse visible from the earth in 1,200 years, having a maximum duration at noon of 7 minutes and 4 seconds. Although it will be visible over a path 5,000 miles long, almost the entire length of this path lies over open water of the Pacific Ocean. Only two tiny islands, upon which astronomers can set up their instruments to make observations, are located within the eclipse path.

Eclipse Travels Backward Across Calendar

The eclipse will "end the day before it starts." Its path will cross the International Date Line in the mid-Pacific, so that it will begin on June 9, but end on June 8.

Cooperating with the National Geographic Society in the expedition will be the United States Navy, the National Bureau of Standards, and the astronomical observatories of several universities.

The scientific program has been prepared and is being directed by Dr. Lyman J. Briggs, chairman of the Research Committee of the National Geographic Society.

Scientific leader of the expedition will be Dr. S. A. Mitchell, director of Leander McCormick Observatory, University of Virginia. Captain J. F. Hellweg, superintendent of the U. S. Naval Observatory, will be in charge of the Navy's participation. Other scientists will include Dr. Paul A. McNally, director of Georgetown College Observatory, Mr. John W. Willis of the Naval Observatory, Dr. Floyd K. Richtmyer of Cornell University, Dr. Irvine C. Gardner of the National Bureau of Standards, Dr. Heber D. Curtis of the University of Michigan Observatory, and a photographer from the National Geographic Society. A naval surgeon qualified to carry out the work of a naturalist probably will join the party at Hawaii.

Maximum Duration To Occur Over Open Ocean

This will be the third solar eclipse expedition to be sent out by the National Geographic Society within a year. The Society sent two expeditions, led by Dr. Gardner and Dr. McNally, to the U. S. S. R. to observe the eclipse of June 19, 1936. This eclipse lasted only 2 minutes and 30 seconds.

The expedition will establish itself on either Canton or Enderbury Island, both of which are in the Phoenix Islands, just south of the Equator, about 1,900 miles southwest of the Hawaiian Islands and 3,000 miles northeast of Australia. The two islands are about 30 miles apart.

There are eight islands altogether in the Phoenix Group. They are all low coral islands, surrounded by reefs, with no permanent inhabitants, and are under the protection of Great Britain.

Enderbury Island is about two and one half miles long and 1 mile wide, while Canton is approximately 9 miles in length and 4 in width. Both have lagoons in the center, and extend not more than 30 feet above sea level. They are uninhabited. Landing on both islands is difficult.

Duration of the eclipse will be four minutes and eight seconds on Enderbury Island and slightly less on Canton. The maximum duration, 7 minutes and 4

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Photograph by T. J. Alldridge

PALM TREES ARE THE PILLARS OF SOCIETY IN LIBERIA, THE LAND OF THE FREE

The tall columns of the palm support one of the main industries of the Liberians, collecting palm nuts and processing them for oil. Boiling the nuts in cauldrons, as in the picture above, produces the clearest oil, which may be sent to the United States for the manufacture of soap. Native soap, black in color, is made in Liberia from the core of the cone on which the palm nuts grow by the thousand.

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State Lines Being Smoothed Out in Northern Germany

GERMANY is streamlining some of her state boundaries. Prussia, Hamburg, and Oldenburg have swapped small parcels of territory, to smooth some kinks from their respective outlines.

The seventeen states of the Reich dovetail more like a jig-saw puzzle than like a checkerboard. Their boundaries are remnants of the past, when the country was mottled with the shifting realms of little kingdoms, principalities, duchies, grand duchies, landgravates—all finally united under the German Empire in 1871 and under the Republic in 1918.

The present changes clean up some of the debris of past politics. Formerly Hamburg dominated two suburbs which were a part of the state of Prussia, and it included Cuxhaven on the coast which was 64 miles beyond the city limits. The port of Wilhelmshaven, on Oldenburg's coast, belonged to Prussia. And Oldenburg claimed the tiny province of Birkenfeld, "lost" down in Prussia.

Hamburg Gets Two "Birds in the Hand" for One in the Bush

These mix-ups occurred as the tides of history washed against state boundaries, battering them in at one spot, allowing them to spill outwards in a landslide elsewhere, gnawing them in two, and even creating political islands. Present adjustments cut the boundaries loose from the apronstrings of 19th century politics and remodel them on more logical geographical lines.

Hamburg's extensions affect the most people. The great port, which retains its old Free City status as a separate state in the Germany of today, turns over its distant anteroom port, Cuxhaven at the mouth of the Elbe, to Prussia and receives in exchange the two adjacent cities of Altona and Harburg-Wilhelmsburg. These cities are already tied to Hamburg by the bonds of business, forming a great commercial metropolis on the traffic-laden Elbe, where the river forks into north and south branches on its way through a delta to the North Sea.

Altona Contains Large Zoo Market

Harburg-Wilhelmsburg, across the river south of Hamburg, is a newer double city on both sides of the South Elbe, occupying land that has been reclaimed in part by diking in and diverting some minor branches of the river. Channels of the Elbe bring some of Hamburg's shipping into the tidal basins of this southern suburb, and raw materials imported from the tropics supply its industries—oil refining, rubber manufacture, and chemical works. Whole colonies of squat round storage tanks for petroleum dot the landscape, and special powerful pumps are provided for loading cargoes of oil. Harburg-Wilhelmsburg was regarded a century ago as equally well situated for shipping as Hamburg and a possible rival, but the industrial city of 100,000 has grown into a helpmeet instead.

The city of Altona, virtually a westward-extending suburb of Hamburg on the north bank of the North Elbe, has always before been under a different government, and at times a bitter enemy of its big neighbor. The Danes developed Altona in the 17th century to lure business away from the thriving Free City next door.

Street cars give the almost quarter of a million Altonians ready access to Hamburg in twenty to thirty minutes, and Hamburgers may travel Altona-wards for suburban residences and gardens on a high bluff above the river. Altona helps fill Hamburg's larder, receiving at its docks and storing in its warehouses fruits, butter, poultry, eggs, grain and feedstuffs, and South American frozen meat.

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seconds, will occur at noon at a point in the open ocean about 1,500 miles from the nearest land.

The expedition's scientific program will be one of the most complete and comprehensive ever carried out by eclipse observers. Special attention will be devoted to observation of the sun's corona, visible only during a total eclipse (see illustration below), and the chromosphere, or outer layer of the sun, by photographing the "flash spectrum," which permits the determination of the heights to which vapors rise from the surface of the sun.

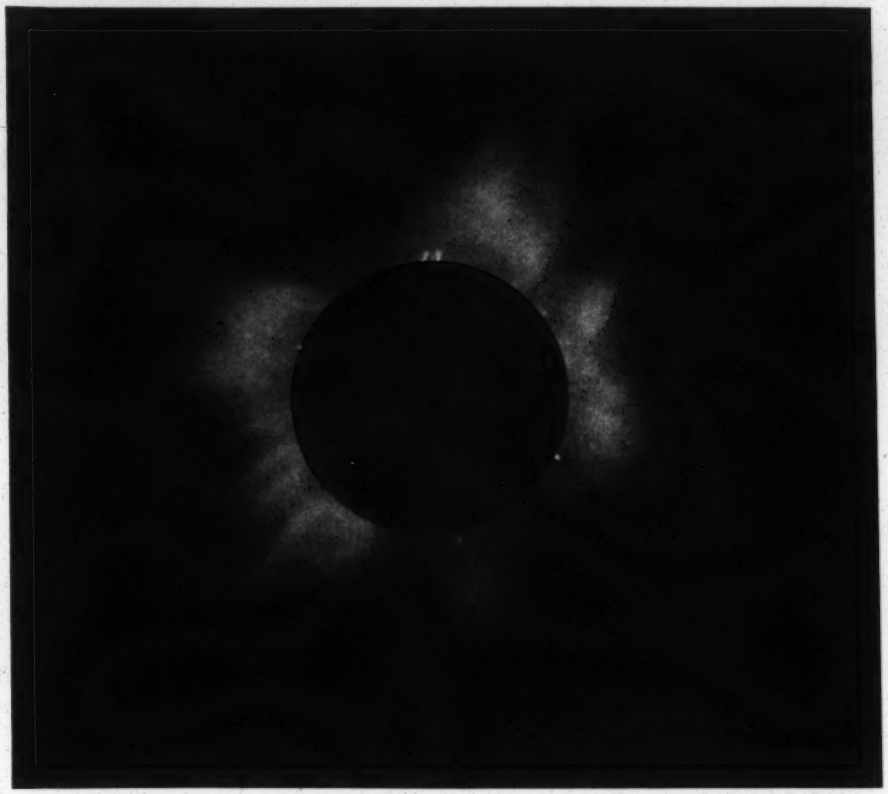
The eclipse will occur on Enderbury Island at 8:04 a. m., and 22 seconds earlier on Canton. This corresponds to 2:15 p. m. Eastern Standard Time.

Note: See also "Observing an Eclipse in Asiatic Russia," *National Geographic Magazine*, February, 1937; "Observing a Total Eclipse of the Sun" and "Photographing the Eclipse of 1932 from the Air," November, 1932; "Interviewing the Stars," January, 1925.

The islands from which the eclipse will be observed are located on The Society's new Map of the Pacific which was issued as a supplement to the *National Geographic Magazine* for December, 1936. Copies of this map may be obtained from The Society's headquarters for 75c (linen), and 50c (paper), postpaid.

See also in the GEOGRAPHIC NEWS BULLETINS: "Expedition Leaves for Siberia To See the Sun's Eclipse," week of April 27, 1937.

Bulletin No. 3, March 8, 1937.



Photograph by Irvine C. Gardner

THE SUN, WITH HIS FACE HIDDEN, IS DAZZLING STILL

For the ignorant of ages past, an eclipse was an evil omen. Today it is a welcome opportunity for scientific researches not possible at any other time. The pearly white corona, ordinarily paled to invisibility by the sun's brilliance, in an eclipse reveals its million-mile streamers. The sun's prominences of flaming hydrogen project a relatively short distance in two places at the top and singly on all sides. This was photographed at Ak Bulak, in U.S.S.R., on June 19, 1936, by the National Geographic Society-National Bureau of Standards Expedition.

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Still the Rickshaw Rolls Right Along

"RICKSHAW! Rickshaw!" as the oriental substitute for the shout of "Taxi!" is well-known. But how well known are the troubles of the rickshaw boy?

His unhappy lot has inspired the Shanghai International Settlement to institute an extensive system of social insurance, insuring the rickshaw men against disability or sudden death in motor-crowded streets.

Thus modernity is catching up with the coolie "carthorse." In fact, as the swift wheels of today whirl on, the whole rickshaw is being gradually crowded off the highway of history. Peiping, formerly an important jinrikisha distributing center, has banned its manufacture.

Descendant of a Baby Carriage

The flyweight, two-wheeled vehicle was christened in Japan, the *jin-riki-sha*, a mongrel word signifying literally "man-strength-vehicle." Slangy Japanese call it *jinriki*, but their politer term is *kuruma*, which means "wheel," and courteously ignores the man who must make the wheels go round. With accent on speed, the Occidental has cast delicacy to the winds and clipped the word to rickshaw.

The first timid intrusion of the machine-age speed into unhurried Japan is attributed to, or blamed upon, various people—a Japanese paralytic in quest of comfortable travel, a British consul, an enterprising native named Takayama Kasaka who filed the first patent application for it in 1870.

The most complete stories refer the rickshaw to the ingenuity of Reverend Jonathan Goble, American Baptist missionary and ex-marine in the U. S. Navy under Commodore Perry, who later lived in Yokohama. To provide his invalid wife with fresh-airings, he directed a Japanese carpenter to build the first jinrikisha from the picture of a baby carriage in *Godey's Lady's Book*, six decades ago.

Though popularly considered a Japanese contribution to transportation, the rickshaw has more than one American root beneath its family tree. Lacquered wooden seats in Peiping are generally equipped with bicycle-like wheels and metal parts made in New Jersey.

Painted Flowers Faded on Their Panels

Not only for its "going power," but for its staying power as well, the jinrikisha owes a small debt of gratitude to the home of the hydraulic brake and the land of free-wheeling. In many oriental cities, where rickshaws are no longer the most convenient means of rapid transit, they are nevertheless retained largely for the tourist trade, much of it American. They satisfy a Westerner's preference for getting one's walking done quite comfortably by someone else, and a taste for traditional local color. Moreover, having passed their zenith as a modern convenience, they are being adopted as touches of quaintness and luxury at resorts and fairs in the United States.

The rickshaw is half horse-and-buggy, half baby-buggy. It is really a horseless carriage with a man for a motor. It still bears a family resemblance to the rear end of the baby carriage which inspired its design. Instead of a go-cart front, however, it has a pair of projecting shafts with a crossbar, within which the puller trots. Light seat covers on its cushions, a scrap of rug for the footboard, and a steamer rug are the oriental substitute for no-draft ventilation.

For too much sun or rain, there is an adjustable hood of oiled paper or

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Some wharfs are busy exclusively with herring from Norwegian and English waters, some with fish from local trawlers. From other wharves coal barges are dispatched to fill ships' bunkers with imported coal.

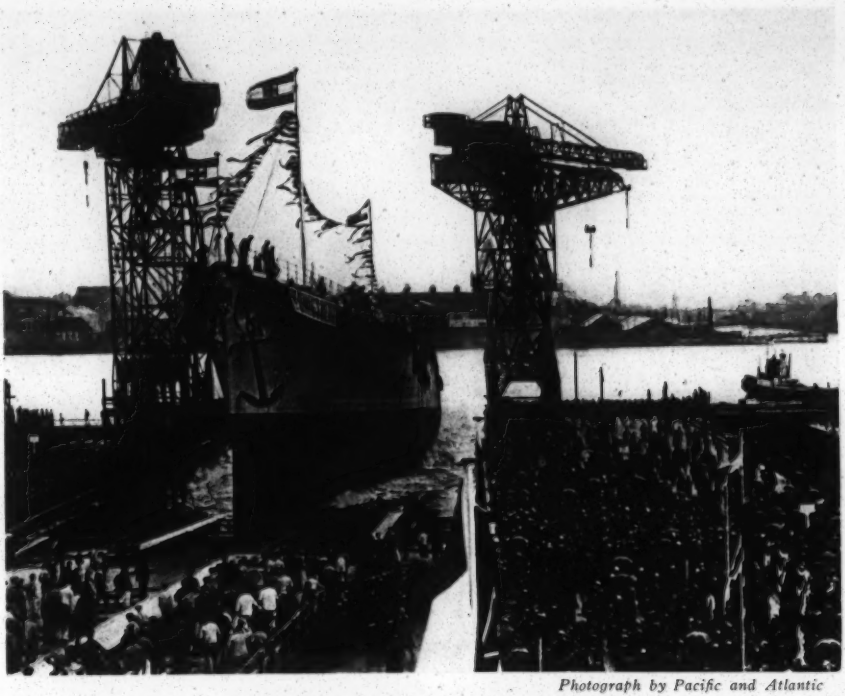
The famous menagerie of Karl Hagenbeck, which has for decades been considered a show-place of Hamburg, is really within the limits of Altona. Enclosures without bars, first developed here, show off the animals as if at liberty. Starting with a few seals and a Polar bear, the Hagenbeck collection is both a favorite haunt for animal lovers and a world center of supply for zoos and circuses.

Cuxhaven, which Hamburg gave up for these urban areas, is a port of about 22,000 lying on the west side of the Elbe where it empties into the North Sea. Since an enemy there could impede free traffic with the Free City, Hamburg has had control of the town since the end of the 14th century. Now Cuxhaven (earlier Cruxhaven) is a landing depot for passengers who travel by rail to Hamburg while their ships make a more leisurely trip up the river.

Similar to the transfer of Cuxhaven to the same government as the surrounding territory was that of Wilhelmshaven to the east on Jade Bay (see illustration, below). The state of Oldenburg, given jurisdiction over Wilhelmshaven, surrendered control of the "island" of Birkenfeld, completely surrounded by Prussia. The separate status of Birkenfeld is now abolished.

Note: Territory within the altered state boundaries, described in the foregoing bulletin, is further described and illustrated in "Hamburg Speaks with Steam Sirens," *National Geographic Magazine*, June, 1933; and "Renascent Germany," December, 1928.

Bulletin No. 4, March 8, 1937.



Photograph by Pacific and Atlantic

WILHELMSHAVEN FULFILLS ITS DESTINY

The launching of a ship in Wilhelmshaven recalls the purpose for which the town was developed—as a naval base for Prussia in the days of the German Empire. In 1853 Prussia purchased four square miles of waterfront from Oldenburg, then a grand duchy. So "naval" is the town that the church steeples are used to check compasses. Bathing beaches and a museum of World War relics, as well as the famous dockyards, attract visitors. Wilhelmshaven now has some commercial importance as eastern terminal of the Ems-Jade Canal to Emden.

rubberized cloth, but passengers frequently cling to their own bright parasols or grim black umbrellas. Once gaudy chrysanthemums, dragons, peonies, cherry blossoms, or landscapes blazed upon the highly varnished surface of the body. Added decorations were polished brass and inlaid shells, or an owner's coat of arms emblazoned in gold. But modern designs restrict color to panels of crimson, yellow, or green on back or mudguards. Head and tail lights are paper lanterns.

A good puller, although his public career may not last longer than ten years, can supply "floating power" enough for a regular speed of four to seven miles an hour. He is equivalent approximately to a one-tenth-horsepower motor. The weight of the rickshaw is so nicely balanced over the wheels that, after the initial tug of starting, it seems to roll along of itself. On smooth surfaces the puller is reported to expend only the energy necessary to pull about eleven pounds instead of the actual poundage of and in the rickshaw; this is in addition to the energy required to run steadily. Rickshaw pulling is taken up by many Chinese youths working their way through college.

Use of this "flying armchair" has spread throughout the Eastern Hemisphere wherever human labor is cheaper than feed for horses or gas for motors. Introduced into China through Shanghai, it soon outdistanced the palanquin, the sedan chair, and the howdah in French Indo-China, Siam, Burma, India, and Ceylon.

Note: Pictures of rickshaws, from Japan their place of birth, to the Union of South Africa, can be found in the following: "Peiping's Happy New Year," *National Geographic Magazine*, December, 1936; "Approach to Peiping," February, 1936; "Peiping, City of Dust and Color" (insert of color pictures), November, 1934; "Here in Manchuria," February, 1933; "Cosmopolitan Shanghai, Key Seaport of China," September, 1932; "Flying the World," June, 1932; "Under the South African Union," April, 1931; "Some Impressions of 150,000 Miles of Travel," May, 1930; "Singapore, Crossroads of the East," March, 1926; "Cairo to Cape Town, Overland," February, 1925; and "The Making of a Japanese Newspaper," October, 1920.

Bulletin No. 5, March 8, 1937.

Photograph by Dr. C. G. Abbot

THE FLYING ARMCHAIR IN AFRICA

The jinrikisha, supposed to be typical of the oriental landscape, is a feature also of Durban, in Natal, Union of South Africa. African "coolies" trot sturdily on whitewashed legs. Their headdress of feathers, symbolizing swiftness, is ornamented at the sides with long curved ox horns as tokens of strength.